# Aaron J. SHARP* & Sinske HATTORI**: *Acrobolbus ciliatus* from Attu Island of the Aleutian Chain***

# A・J・シャープ*・服部新佐**: アリュウシャン列島のアッツ島に *Acrobolbus ciliatus* 発見***

The senior writer (Sharp) made a brief bryological survey in June on the eastern end of Attu Island of the Aleutian chain, where he found *Acrobolbus ciliatus* and immediately sent portions of it by air to the junior writer (Hattori) for verification. Sharp wrote, "If 9039 and 9197 are what I think they are (I have only a common handlens), they are rather exciting collections. I enclose fragments of each. I think it is *Acrobolbus ciliatus*, sometimes known as *A. rhizophyllus* or *A. titibuensis*! If it isn't this species, it must certainly be closely related." (lit., 15 June 1968 from Attu I.). At the beginning of July Sharp brought the two complete collections to Nichinan during a brief visit. Hattori searched unsuccessfully for female flowers and sporophytes in these collections, but did observe a shoot whose tip had become more or less thickened and densely rhizophorous, which might have developed into a gynoecium. The synonymy and collection data for the two collections follow:

**Acrobolbus ciliatus** (Mitt.) Schiffn. in Engler & Prantl, Nat. Pflanzenfam. **1**(3): 86 (1893). Basionym: *Gymnanthe ciliata* Mitt., Jour. Proc. Linn. Soc. Bot. **5**: 100 (1861), from Sikkim, 11000 ft. Syn.: *Acrobolbus rhiziphyllus* Sharp, The Bryologist **39**: 1 (1936), from the Southern Appalachians. *Leiocolea titibuensis* Hatt., Jour. Jap. Bot. **19**: 197 (1943), from Chichibu Mts., Japan. *Acrobolbus titibuensis* (Hatt.) Hatt., Jour. Jap. Bot. **26**: 96 (1951).

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*Lophozia curiosissima* Horik., Jour. Sci. Hiroshima Univ. ser. b, div. 2, **2**: 152 (1934), from Mt. Morrison, Formosa.

Attu specimens: Shaded, very moist soil at edge of shallow brook on slope of Hill 37 above Coast Guard Station on Massacre Bay, ca. 350 ft., 15 July 1968, *A. J. Sharp 9039*; at base of shaded, wet boulder in bank at edge of stream on Hill 37, 15 July 1968, *A. J. Sharp 9197*.

In this material the marginal cilia of leaves are well-developed and often more than 40 per leaf, whereas in Japanese and Formosan materials the number is generally fewer than 10–15; and often there are none. Leaf-cells are $25-28\times20-25\ \mu$ along the margin and $25-35\times25\ \mu$ in the middle, and thin- to more or less thick-walled with medium-sized, triangular trigones, and a slightly verrucose cuticle. Under a compound microscope 8 days after collection, the oil-bodies of leaf-cells still seemed to be in excellent condition; they were large, rounded to elliptical, containing numerous, minute spherules which gave them a gray color. In each cell 3–7 oil-bodies were observed.

For details of this taxon, its synonymy and literature, see p. 141–143 & Fig. XXXV of N. Kitagawa's "A Revision of the Family Lophoziaceae of Japan and its Adjacent Regions. II." (Jour. Hattori Bot. Lab. **29**: 101–149, 1966); for the oil-bodies, see S. Hattori (in Jour. Jap. Bot. **26**: 242, fig. F–H, 1951; Jour. Hattori Bot. Lab. **10**: 67, 1953); and for regeneration from leaf, see H. Inoue (in Jour. Jap. Bot. **33**: 305, fig. a–n, 1958).

In collection no. 9039 the plants of *Acrobolbus* are rich and comparatively well-developed and are accompanied by the following bryophytes: *Bazzania tricrenata* (Wahl.) Trev., *Blepharostoma trichophyllum* (L.) Dum., *Cephalozia media* Lindb. (?), *Diplophyllum taxifolium* (Wahl.) Dum., *Lejeunea flava* (Swartz) Nees (?), *Lejeunea* (subg. Hygrolejeunea ?) sp. (probably new), *Macrodiplophyllum plicatum* (Lindb.) Perss., *Plagiochila firma* Mitt. subsp. *confusa* (Schust.) Inoue, *Calliergon* (?) sp., *Dicranum majus* Turn., *Hylocomium splendens* (Hedw.) B. S. G., *Hypnum* sp., *Mnium glabrescens* Kindb., *Plagiothecium undulatum* (Hedw.) B. S. G., and *Rhytidiadelphus loreus* (Hedw.) Warnst.

In no. 9197 the plants are poor in comparison with those of no. 9039, and are intermingled with *Thuidium kanedae* Sak. (?). Other accompanying bryophytes are: *Bazzania tricrenata, Blepharostoma trichophyllum, Cephalozia media* ?, *Bryhnia hultenii* Bartr., *Claopodium bolanderi* Best and *Plagiothecium*

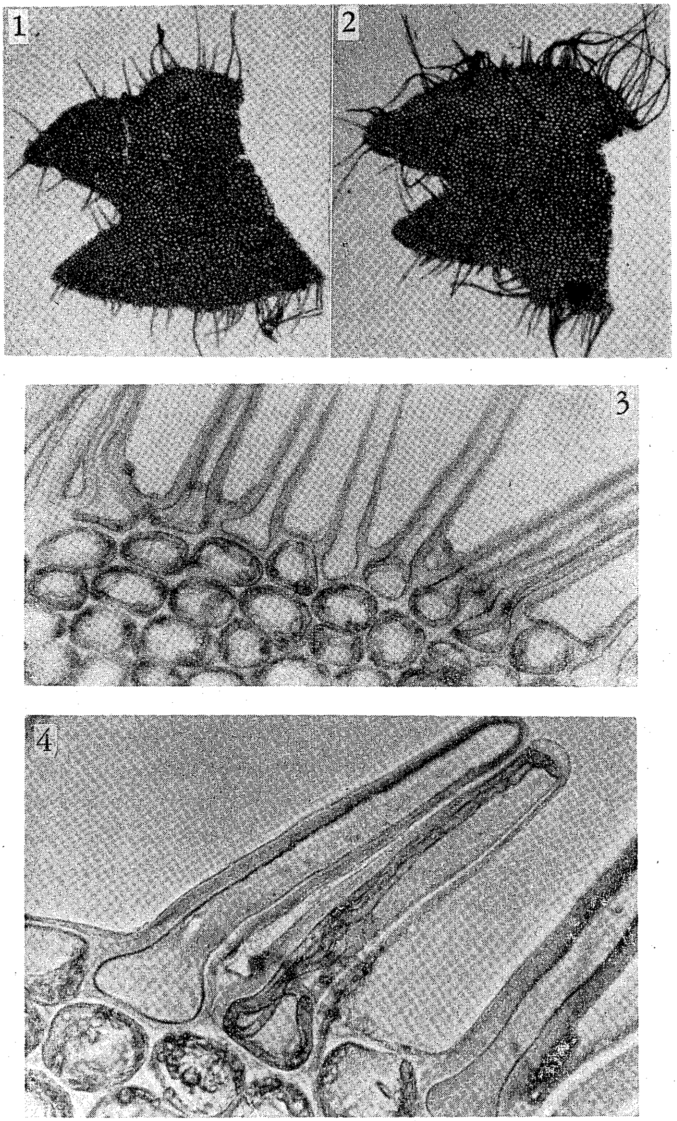

Fig. 1. *Acrobolbus ciliatus* (Mitt.) Schiffn.

1 & 2. Leaves, ×20. 3. Part of Leaf-margin, ×320. 4. *Do.*, ×535. Fungal hyphae are observed in cilia. Photographed by Z. Iwatsuki from specim. no. 9039.

*roseanum* B. S. G.

The occurrence of *Acrobolbus ciliatus* on Attu Island is of much interest for the following reasons. The plants usually are sterile and form a mat by asexual reproduction; antheridia are rarely observed, whereas neither gynoecia nor sporophytes have been known. The known localities for this species are Sikkim and Nepal, Formosa (Mt. Morrison), Japan (several mountains in Honshu, Shikoku and Kyushu), and North America (the Southern Appalachians), showing a typical disjunctive type of distribution. In Japan this species has a restricted distribution, having been found only on Mt. Ichifusa and Shiiba (both in Kyushu), Mts. Higashi-akaishi and Shiraga (both in Shikoku) and several localities in the Chichibu montane area (NW of Tokyo), Osugi Valley and Odaigahara (both in Kii district, Honshu). It is not common because it is easy to recognize in the field with a hand-lens, because of its conspicuous and peculiar, long (but one-celled) marginal cilia of leaves; and many bryologists have unsuccessfully searched for it. In Japan the underlying rocks are mostly calcareous, although on Mt. Ichifusa the species occurs on granite. In the Southern Appalachians it grows on graywacke. All of these localities are considered to be land-masses that have not been covered by glaciers nor submerged by marine waters since the late Tertiary period.

The accompanying bryophytes listed above also include phytogeographically interesting species. The occurrence of the two species of Lejeuneaceae listed above are of particular interest. Unfortunately, however, the materials of both were so scanty, each consisting of several fragmental shoots, that we could not identify them with confidence, although the *Lejeunea* (Hygrolejeunea ?) sp. with apiculate—acuminate leaf-apices may be new and closely related to a species described from Sikkim.

Thus, the finding of *Acrobolbus* and the accompanying bryophytes adds an important aspect to our knowledge of the origin and history of the Attu flora. Sharp collected there over 400 additional packets of bryophytes, close studies of which should provide more information concerning the distributional problem mentioned above.

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*Acrobolbus ciliatus* は葉縁に独特の単細胞の長い刺毛を生ずるので野外でもルーペで確認出来る。南アパラチア，日本，台湾，シッキム，ネパールに不連続分布する本

種がアリュウシャンのアッツ島に発見されたので報告した。雄器は知られているが，雌器も従って胞子体も知られず，また上記の分布型から考えても，本種がアッツ島に知られたことは同島のフロラの成立が新しくはないことを示すと思われる。本種と混生していたコケ類もこの考えを支持する。恐らくアッツ島は第3紀後半以降海浸，火山活動或いは氷河などのためコケ・フロラが絶滅するような事態は起らなかったであろう。

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### ○地衣類思い出話 (2) (富樫　誠) Makoto TOGASHI: Miscellaneous notes on lichens or lichenological survey (2)

*Parmelia praesorediosa* Nyl. には五つの異名がある。最も古いこの有効名は1891年にシンガポール附近の標本で設定されたものだが，その第1の異名 *P. capitata* Lynge はブラジル産で1914年の発表であり，第2の異名は *P. sanctaecrucis* Vain. で西インド群島中のプエルトリコ諸島で採集され其発表は1915年であり，第3の異名は *P. neglecta* Asahina で台湾，来社産のものをタイプとし，第4の異名は *P. luzonensis* Räs. で Philippines 産がタイプであり第5の異名は *P. subcetrarioides* des Abbayes でアフリカ産のものがタイプとなって居る。要するに本種は Hale が云う様に汎熱帯性の種であるので，広く外国の標本に目を通して居ないとやゝもすれば新種として発表されてしまうのである。其後此の地衣は吾国中・南部で時々見附かったが何れも無子器であり，全形並に化学成分では *P. praesorediosa* に一致しても，何とかして胞子の大さも慥めたいのが朝比奈先生の御希望で，昭和34年秋も漸く深まった11月に行われた天草島の採集の一つの目的は此地衣の有子器品を捕えることであった。幸に天草島北端の富岡町では所々の石垣に本種を見付たので，目標をお寺の古い石塔に絞り遂に同地の鎮導寺の墓地でネバった末，タッター枚ではあったが径1デシ位の箇体の中央に一個ではあるが完全な子器の存在を確認して凱旋した。